

AMENDMENTS TO THE CLAIMS

Please amend the claims as set forth below.

What is claimed is:

1. (Previously Amended) A method for optimizing a refractive prescription without using subjective refractions, the method comprising the steps of:

a. obtaining aberrometric data from a patient by way of an aberrometer; and
b. utilizing the aberrometric data to perform an equivalent quadratic fitting calculation that optimizes the quality of the retinal image to obtain at least one clinical refractive spherocylindrical prescription for the patient; whereby the method for optimizing a refractive prescription occurs without the use of subjective refractions.

2. (Original) The method of claim 1, further comprising the step of adjusting the refractive prescription to maximize the utilization of the patient's depth of field if the aberrometric data suggests that the patient's vision is myopic.

3. (Original) The method of claim 1, further comprising the step of adjusting the ideal optic prescription to maximize the utilization of the patient's depth of field if the aberrometric data suggests that the patient's vision is hyperopic.

4. (Original) The method of claim 1, wherein the step of utilizing the aberrometric data to perform a equivalent quadratic fitting calculation is performed by a computer processor.

5. (Original) The method of claim 1, further comprising the step of evaluating the results and allowing a user to determine whether the prescription should be further optimized.

6. (Original) The method of claim 1, further comprising the step of selecting one of a plurality of optic prescriptions.

7. (Original) The method of claim 1, further comprising the steps of:

- a. obtaining patient data; and
 - b. utilizing the patient data to optimize a clinical refractive prescription.
8. (Previously Amended) The method of claim 1, further comprising the steps of:
- a. obtaining environmental data; and
 - b. utilizing the environmental data to optimize a clinical refractive prescription.
9. (Previously Amended) A method for optimizing a refractive prescription without using subjective refractions, the method comprising the steps of:
- a. obtaining aberrometric data from a patient by way of an aberrometer;
 - b. selecting a metric of optimized image quality;
 - c. generating an aberration map from the aberrometric data; and
 - d. simulating a through focus experiment; whereby the method for optimizing a refractive prescription occurs without the use of subjective refractions.
10. (Original) The method of claim 9, further comprising the step of adjusting the ideal optic prescription to maximize the utilization of the eye's depth of field if the aberrometric data suggests that the patient's vision is myopic.
11. (Original) The method of claim 9, further comprising the step of adjusting the ideal optic prescription to maximize the utilization of the eye's depth of field if the aberrometric data suggests that the patient's vision is hyperopic.
12. (Original) The method of claim 9, wherein the step of simulating a through focus experiment is performed by a computer processor.
13. (Original) The method of claim 9, further comprising the step of evaluating the results and allowing a user to determine whether the prescription should be further optimized.
14. (Original) The method of claim 9, further comprising the steps of:

- a. obtaining patient data; and
 - b. utilizing the patient data to optimize a clinical refractive prescription.
15. (Previously Amended) The method of claim 9, further comprising the steps of:
- a. obtaining environmental data; and
 - b. utilizing the environmental data to optimize a clinical refractive prescription.
16. (Original) The method of claim 9, comprising the additional step of recalculating metrics for each condition in the through focus simulation.
17. (Original) The method of claim 16, further comprising the step of selecting a prescription that maximizes the chosen metric.
18. (Original) The method of claim 17, wherein the prescription that maximizes the chosen metric is maximized for a specific distance.
19. (Original) The method of claim 17, wherein the prescription that maximizes the chosen metric is maximized to achieve a desired trade-off between maximal quality and depth of focus.
20. (Previously Presented) The method of claim 1, wherein the equivalent quadratic fitting calculation nulls the second-order Zernike coefficients in the aberrometric map.
21. (Previously Presented) The method of claim 1, wherein the equivalent quadratic fitting calculation nulls the second-order Seidel coefficients in the aberrometric map.
22. (Previously Presented) The method of claim 9, further comprising the step of eliminating at least one spherical and cylindrical refractive error by nulling the second-order Zernike coefficients in the aberrometric map.

23. (Previously Presented) The method of claim 9, further comprising the step of eliminating at least one spherical and cylindrical refractive error by nulling the second-order Seidel coefficients in the aberrometric map.

24. (Previously Presented) The method of claim 17, wherein the metric is selected from a group consisting of RMS_w , PV, RMS_s , B_{ave} , PFW_c , PFS_c , PFC_c , PFW_t , PFS_t , PFC_t , D_{50} , EW, SM, HWHH, CW, SRX, LIB, STD, ENT, NS, VSX, SFCMTF, SFCOTF, AreaMTF, AreaOTF, SRMTF, SROTF, VSMTF, VSOTF, VOTF, VNOTF, OTF_{poly} .